

Work Order ID 151207

\*151207\*

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September 14, 2016 1:08:03 PM

Ship Oct 20

Item ID: D212-725-1-007 Accept \*N900040100\* Setup Start \*NS1\*  
 Revision ID: Stop \*NS2\*  
 Item Name: Collective Bell Crank  
 Start Date: 9/14/2016 Start Qty: 6.00 \*6\* Cust Item ID:  
 Required Date: 10/11/2016 Req'd Qty: 6.00 \*6\* Customer:

Reference:

Approvals: Process Plan: SW Date: SEP 13 2016 Tooling: Date: Run Start \*NR1\*  
 QC: Date: SPC (Y/N): Date: Stop \*NR2\*

| Sequence ID/<br>Work Center ID | Operation<br>Description | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
| Draw Nbr                       | Revision Nbr             |                      |         |        |              |               |               |                  |                |
| D4215                          | A                        |                      |         |        |              |               |               |                  |                |

100 0.11  
 \*100\* HAAS CNC VERTICAL MACHINING #1  
 HAAS 1  
 HAAS CNC vertical machine #1  
 Memo  
 \*\*\*\*Critical Part,MRB decisions on this part may only be performed by DART DE#02.Any changes to the design,manufacturing process,approved operating enviroment,and design loading spectrum will require a review of the fatigue evaluation for this part\*\*\*\*\*  
 Machine as per Folio FA656 and Dwg D212-725-1  
 Dwg Rev: A  
 Folio Rev: AA

B-a 16/10/04

6 1

DAS  
08  
9-33

110 0.00  
 \*110\* QC2- Inspect parts off machine FAI/FAIB  
 QC  
 Quality Control  
 Memo  
 0.00

B-a 16/10/04

6 0

DAS  
08  
9-33

PTO

DQA: Ant Date: JAN 3 2017

QA Closed: RAN Date: DEC 20 2018

# WORK ORDER NON-CONFORMANCE / UPDATE



Work Order update only ☐

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |                                                     |                                                                      |  |
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| Work Order: <u>151207</u><br>Part No. <u>0212-725-1-007</u><br>NCR No. <u>16-6181</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | <b>DISPOSITION</b><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input checked="" type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  | <b>AGAINST DEPARTMENT/PROCESS</b><br>Skid-tube <input type="checkbox"/> Cross tube <input type="checkbox"/> Water Jet <input type="checkbox"/> Engineering <input checked="" type="checkbox"/><br>Machining <input type="checkbox"/> Small Fab <input type="checkbox"/> Prod. Eng. Coord. <input type="checkbox"/> Quality <input type="checkbox"/><br>Thermoforming <input type="checkbox"/> Finishing <input type="checkbox"/> Rec/Store/Packaging <input type="checkbox"/> Other <input type="checkbox"/><br>Large Fab <input type="checkbox"/> Composite <input type="checkbox"/> Supplier <input type="checkbox"/> |  |  |                                                     |                                                                      |  |
| Date: <u>16/9/27</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  | Step #: <u>100</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  | QTY Effective: <u>6</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  | MRB (QSI042) Approval<br>DAS 12 9-89 <u>16/9/27</u> |                                                                      |  |
| Description Work Order Deviation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |  |                                                     | Completed By<br>DAS 12 9-89 <u>16/9/27</u>                           |  |
| Bore & tolerance change per manufacturing request.<br>$\phi 1.602^{+0.000}_{-0.001}$ was $\phi 1.001^{+0.000}_{-0.002}$<br>$\phi 0.9085^{+0.000}_{-0.001}$ was $\phi 0.907^{+0.000}_{-0.002}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | Acceptable per D.S. email.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |                                                     | Lead hand / Supervisor Approval Verification<br><u>B. = 16/09/27</u> |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |                                                     | QC / QA Coordinator Approval<br>DAS 38 9-89<br><u>OCT 18 2018</u>    |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |                                                     |                                                                      |  |
| <b>Root Cause</b><br>Environment <input type="checkbox"/> No Re-verification <input type="checkbox"/><br>Design <input checked="" type="checkbox"/> Operator <input type="checkbox"/><br>Doc/Data <input type="checkbox"/> Offset/Setup <input type="checkbox"/><br>Equip/Tooling <input type="checkbox"/> Supplier <input type="checkbox"/><br>Handling/Pre <input type="checkbox"/> Training <input type="checkbox"/><br>Material <input type="checkbox"/> Use for Testing <input type="checkbox"/><br>Internal Transport <input type="checkbox"/> Poor Information <input type="checkbox"/><br>Tribal Knowledge <input type="checkbox"/> Rushing <input type="checkbox"/><br>LOA <input type="checkbox"/> Product Improvement <input type="checkbox"/><br>Substation <input type="checkbox"/> Process Improvement <input type="checkbox"/><br>Past Expiry Date <input type="checkbox"/> Manufacturing Process <input type="checkbox"/><br>Misidentified <input type="checkbox"/> Past Due <input type="checkbox"/> |  | <b>FAULT CATEGORY</b><br>Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Power Loss/Surge <input type="checkbox"/> Positioned Wrong <input type="checkbox"/><br>Bending <input type="checkbox"/> Set-up <input type="checkbox"/> Folio/Program <input type="checkbox"/> Outside Dimensions <input type="checkbox"/><br>Centre Not Concentric <input type="checkbox"/> BOM/Route <input type="checkbox"/> Grain <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/><br>Cracks <input type="checkbox"/> Broken/Damage/Defect <input type="checkbox"/> Weld <input type="checkbox"/> Part Incorrect <input type="checkbox"/><br>Crimp/Kink/Ripple/Wave <input type="checkbox"/> Inspection Incomplete/Unqualified <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/><br>Cuffs <input type="checkbox"/> Contamination <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Part Moved <input type="checkbox"/><br>Crushing <input type="checkbox"/> Countersink <input type="checkbox"/> Off-set <input checked="" type="checkbox"/> Drawing <input type="checkbox"/><br>Heat Treat <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Mislabeled <input type="checkbox"/> Finish <input type="checkbox"/><br>Wave/Twist in Tube <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Fit/Function <input type="checkbox"/> Misread <input type="checkbox"/><br>Marks/Chatter <input type="checkbox"/> Drill Holes <input type="checkbox"/> Misaligned/off center <input type="checkbox"/> Turning Sequence <input type="checkbox"/> |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |                                                     | OTHER: <u>customer request</u>                                       |  |

**Work Order ID 151207**

September 14, 2016 1:08:03 PM

**\*151207\***

Page 2

Item ID: D212-725-1-007

Accept

**\*N900040100\***

Setup Start

**\*NS1\***

Revision ID:

Stop

**\*NS2\***

Item Name: Collective Bell Crank

Start Date: 9/14/2016 Start Qty: 6.00

**\*6\***

Cust Item ID:

Required Date: 10/11/2016 Req'd Qty: 6.00

**\*6\***

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start

**\*NR1\***

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop

**\*NR2\***

| Sequence ID/<br>Work Center ID | Operation<br>Description                                                                                                              | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp    |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|-------------------|
| 120                            | CONVENTIONAL MILLING MACHINE                                                                                                          | 0.00                 |         |        |              |               |               |                  |                   |
| <b>*120*</b><br>Mill Conv      | Memo                                                                                                                                  | 1.36                 |         |        |              |               |               |                  | DAS<br>08<br>9-89 |
| Conventional Milling Machine   | MILL SLOTS AS PER DWG D4215. using DT8895.<br>2-Deburr & Tumble                                                                       |                      |         |        |              |               |               |                  |                   |
| 122                            |                                                                                                                                       | 0.00                 |         |        |              |               |               |                  | DAS<br>08<br>9-89 |
| <b>*122*</b><br>Hardinge       | Memo                                                                                                                                  | 0.00                 |         |        |              |               |               |                  |                   |
| Hardinge CNC Lathe Small       | -Turn outside diameter of sleeves as per dwg. DT10064 MADREL.<br>-Turn inside diameter of sleeves as per dwg. using DT10229, DT10230. |                      |         |        |              |               |               |                  |                   |
| 130                            | QC2- Inspect parts off machine FAI/FAIB                                                                                               | 0.00                 |         |        |              |               |               |                  | DAS<br>08<br>9-89 |
| <b>*130*</b><br>QC             | Memo                                                                                                                                  | 0.00                 |         |        |              |               |               |                  |                   |
| Quality Control                |                                                                                                                                       |                      |         |        |              |               |               |                  |                   |

PTO-7



DQA: Star Date: JAN 3 2017QA Closed: BA Date: DEC 2 0 2016

## WORK ORDER NON-CONFORMANCE / UPDATE

Work Order update only ☐

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| Work Order: <u>151207</u><br>Part No. <u>D212-725-1-007</u><br>NCR No. <u>16-6182</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>DISPOSITION</b><br>Rework <input type="checkbox"/><br>Scrap <input checked="" type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> | <b>AGAINST DEPARTMENT/PROCESS</b><br><table style="width:100%;"> <tr> <td>Skid-tube <input type="checkbox"/></td> <td>Cross tube <input type="checkbox"/></td> <td>Water Jet <input type="checkbox"/></td> <td>Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input checked="" type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table> |                                                               |                                                                                      |                          | Skid-tube <input type="checkbox"/> | Cross tube <input type="checkbox"/> | Water Jet <input type="checkbox"/> | Engineering <input type="checkbox"/> | Machining <input checked="" type="checkbox"/> | Small Fab <input type="checkbox"/> | Prod. Eng. Coord. <input type="checkbox"/> | Quality <input type="checkbox"/> | Thermoforming <input type="checkbox"/> | Finishing <input type="checkbox"/> | Rec/Store/Packaging <input type="checkbox"/> | Other <input type="checkbox"/> | Large Fab <input type="checkbox"/> | Composite <input type="checkbox"/> | Supplier <input type="checkbox"/> |          |                          |                 |                          |                    |                          |                  |                          |                  |                          |         |                          |     |                          |                     |                          |            |                          |                     |                          |                  |                          |                       |                          |               |                          |          |                          |                                                        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                    |                  |                          |
| Skid-tube <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Engineering <input type="checkbox"/>                          |                                                                                      |                          |                                    |                                     |                                    |                                      |                                               |                                    |                                            |                                  |                              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| Machining <input checked="" type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Small Fab <input type="checkbox"/>                                                                                                                                                        | Prod. Eng. Coord. <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Quality <input type="checkbox"/>                              |                                                                                      |                          |                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           |                          |              |                          |         |                          |               |                          |             |                          |                       |                          |                  |                          |
| Thermoforming <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Finishing <input type="checkbox"/>                                                                                                                                                        | Rec/Store/Packaging <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Other <input type="checkbox"/>                                |                                                                                      |                          |                                    |                                     |                                    |                                      |                                               |                                    |                                            |                                  |                              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| Large Fab <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Composite <input type="checkbox"/>                                                                                                                                                        | Supplier <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                               |                                                                                      |                          |                                    |                                     |                                    |                                      |                                               |                                    |                                            |                                  |                              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| Date: <u>16-10-14</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Step #: <u>100</u>                                                                                                                                                                        | QTY Effective: <u>1</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | MRB (QSI042) Approval<br><u>DAS 9</u><br><u>9-89 16-10-14</u> |                                                                                      |                          |                                    |                                     |                                    |                                      |                                               |                                    |                                            |                                  |                              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| Description Work Order Deviation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       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| Part has a hole in the 1.002" bore wall area and 1 of the ears (.228" dia) has a step machined in it.<br><br>R.C: Operator forgot to move by .500 the Y axis origin before starting prog. Realised after first hole that origin had to be shifted, did so to try saving the part but it was already too late                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                           | → Program was for 3 axis machines<br>→ Program has now been updated for 5 axis machine <u>DFS 16/10/14</u><br><br>→ Scrap / destroy and replace<br><br><u>B 149947</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                               | Lead hand / Supervisor Approval Verification<br><u>DAS 9</u><br><u>9-89 16-10-14</u> |                          |                                    |                                     |                                    |                                      |                                               |                                    |                                            |                                  |                                        |                                    |                                              |                                |                                    |                       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| Root Cause                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             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| <table style="width:100%;"> <tr><td>Environment</td><td><input type="checkbox"/></td><td>No Re-verification</td><td><input type="checkbox"/></td></tr> <tr><td>Design</td><td><input type="checkbox"/></td><td>Operator</td><td><input type="checkbox"/></td></tr> <tr><td>Doc/Data</td><td><input type="checkbox"/></td><td>Offset/Setup</td><td><input checked="" type="checkbox"/></td></tr> <tr><td>Equip/Tooling</td><td><input type="checkbox"/></td><td>Supplier</td><td><input type="checkbox"/></td></tr> <tr><td>Handling/Pre</td><td><input type="checkbox"/></td><td>Training</td><td><input type="checkbox"/></td></tr> <tr><td>Material</td><td><input type="checkbox"/></td><td>Use for Testing</td><td><input type="checkbox"/></td></tr> <tr><td>Internal Transport</td><td><input type="checkbox"/></td><td>Poor Information</td><td><input type="checkbox"/></td></tr> <tr><td>Tribal Knowledge</td><td><input type="checkbox"/></td><td>Rushing</td><td><input type="checkbox"/></td></tr> <tr><td>LOA</td><td><input type="checkbox"/></td><td>Product Improvement</td><td><input type="checkbox"/></td></tr> <tr><td>Substation</td><td><input type="checkbox"/></td><td>Process Improvement</td><td><input type="checkbox"/></td></tr> <tr><td>Past Expiry Date</td><td><input type="checkbox"/></td><td>Manufacturing Process</td><td><input type="checkbox"/></td></tr> <tr><td>Misidentified</td><td><input type="checkbox"/></td><td>Past Due</td><td><input type="checkbox"/></td></tr> </table> | Environment                                                                                                                                                                               | <input type="checkbox"/>                                                                                                                                                                                                                                                                                                     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<input type="checkbox"/>               | Supplier                           | <input type="checkbox"/>                     | Handling/Pre                   | <input type="checkbox"/>           | Training                           | <input type="checkbox"/>          | Material | <input type="checkbox"/> | Use for Testing | <input type="checkbox"/> | Internal Transport | <input type="checkbox"/> | Poor Information | <input type="checkbox"/> | Tribal Knowledge | <input type="checkbox"/> | Rushing | <input type="checkbox"/> | LOA | <input type="checkbox"/> | Product Improvement | <input type="checkbox"/> | Substation | <input type="checkbox"/> | Process Improvement | <input type="checkbox"/> | Past Expiry Date | <input type="checkbox"/> | Manufacturing Process | <input type="checkbox"/> | Misidentified | <input type="checkbox"/> | Past Due | <input type="checkbox"/> | <table style="width:100%;"> <tr><td>Pressure/Forced</td><td><input type="checkbox"/></td><td>Temperature/Cure</td><td><input type="checkbox"/></td><td>Power Loss/Surge</td><td><input type="checkbox"/></td><td>Positioned Wrong</td><td><input type="checkbox"/></td></tr> <tr><td>Bending</td><td><input type="checkbox"/></td><td>Set-up</td><td><input checked="" type="checkbox"/></td><td>Folio/Program</td><td><input type="checkbox"/></td><td>Outside Dimensions</td><td><input type="checkbox"/></td></tr> <tr><td>Centre Not Concentric</td><td><input type="checkbox"/></td><td>BOM/Route</td><td><input type="checkbox"/></td><td>Grain</td><td><input type="checkbox"/></td><td>Over/Under tolerance</td><td><input type="checkbox"/></td></tr> <tr><td>Cracks</td><td><input type="checkbox"/></td><td>Broken/Damage/Defect</td><td><input type="checkbox"/></td><td>Weld</td><td><input type="checkbox"/></td><td>Part Incorrect</td><td><input type="checkbox"/></td></tr> <tr><td>Crimp/Kink/Ripple/Wave</td><td><input type="checkbox"/></td><td>Inspection Incomplete/Unqualified</td><td><input type="checkbox"/></td><td>Wrong Stock Pulled</td><td><input type="checkbox"/></td><td>Part Lost/Missing</td><td><input type="checkbox"/></td></tr> <tr><td>Cuffs</td><td><input type="checkbox"/></td><td>Contamination</td><td><input type="checkbox"/></td><td>Out of Sequence</td><td><input type="checkbox"/></td><td>Part Moved</td><td><input type="checkbox"/></td></tr> <tr><td>Crushing</td><td><input type="checkbox"/></td><td>Countersink</td><td><input type="checkbox"/></td><td>Off-set</td><td><input type="checkbox"/></td><td>Drawing</td><td><input type="checkbox"/></td></tr> <tr><td>Heat Treat</td><td><input type="checkbox"/></td><td>Cut Too Short</td><td><input type="checkbox"/></td><td>Mislabeled</td><td><input type="checkbox"/></td><td>Finish</td><td><input type="checkbox"/></td></tr> <tr><td>Wave/Twist in Tube</td><td><input type="checkbox"/></td><td>Instructions Incomplete/Unclear</td><td><input type="checkbox"/></td><td>Fit/Function</td><td><input type="checkbox"/></td><td>Misread</td><td><input type="checkbox"/></td></tr> <tr><td>Marks/Chatter</td><td><input type="checkbox"/></td><td>Drill Holes</td><td><input type="checkbox"/></td><td>Misaligned/off center</td><td><input type="checkbox"/></td><td>Turning Sequence</td><td><input type="checkbox"/></td></tr> </table> |  |  | Pressure/Forced | <input type="checkbox"/> | Temperature/Cure | <input type="checkbox"/> | Power Loss/Surge | <input type="checkbox"/> | Positioned Wrong | <input type="checkbox"/> | Bending | <input type="checkbox"/> | Set-up | <input checked="" type="checkbox"/> | Folio/Program | <input type="checkbox"/> | Outside Dimensions | <input type="checkbox"/> | Centre Not Concentric | <input type="checkbox"/> | BOM/Route | <input type="checkbox"/> | Grain | <input type="checkbox"/> | Over/Under tolerance | <input type="checkbox"/> | Cracks | <input type="checkbox"/> | Broken/Damage/Defect | <input type="checkbox"/> | Weld | <input type="checkbox"/> | Part Incorrect | <input type="checkbox"/> | Crimp/Kink/Ripple/Wave | <input type="checkbox"/> | Inspection Incomplete/Unqualified | <input type="checkbox"/> | Wrong Stock Pulled | <input type="checkbox"/> | Part Lost/Missing | <input type="checkbox"/> | Cuffs | <input type="checkbox"/> | Contamination | <input type="checkbox"/> | Out of Sequence | <input type="checkbox"/> | Part Moved | <input type="checkbox"/> | Crushing | <input type="checkbox"/> | Countersink | <input type="checkbox"/> | Off-set | <input type="checkbox"/> | Drawing | <input type="checkbox"/> | Heat Treat | <input type="checkbox"/> | Cut Too Short | <input type="checkbox"/> | Mislabeled | <input type="checkbox"/> | Finish | <input type="checkbox"/> | Wave/Twist in Tube | <input type="checkbox"/> | Instructions Incomplete/Unclear | <input type="checkbox"/> | Fit/Function | <input type="checkbox"/> | Misread | <input type="checkbox"/> | Marks/Chatter | <input 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| Environment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            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| Equip/Tooling                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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| Internal Transport                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     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| Tribal Knowledge                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       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| LOA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    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| Substation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             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| Past Expiry Date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <input type="checkbox"/>                                                                                                                                                                  | Manufacturing Process                                                                                                                                                                                                                                                                                                                                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| Misidentified                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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| Pressure/Forced                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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          |                                    |                                              |                                |                                    |                                    |                                   |          |                          |                 |                          |                    |                          |                  |                          |                  |                          |         |                          |     |                          |                     |                          |            |                          |                     |                          |                  |                          |                       |                          |               |                          |          |                          |                                                                                                                                                          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| Bending                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                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          |                                    |                                              |                                |                                    |                                    |                                   |          |                          |                 |                          |                    |                          |                  |                          |                  |                          |         |                          |     |                          |                     |                          |            |                          |                     |                          |                  |                          |                       |                          |               |                          |          |                          |                                                                                                                                                          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| Centre Not Concentric                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  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          |                                    |                                              |                                |                                    |                                    |                                   |          |                          |                 |                          |                    |                          |                  |                          |                  |                          |         |                          |     |                          |                     |                          |            |                          |                     |                          |                  |                          |                       |                          |               |                          |          |                          |                                                                                                                                                          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| Cracks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <input type="checkbox"/>                                                                                                                                                                  | Broken/Damage/Defect                                                                                                                                                                                                                                                                                                                                 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          |                                    |                                              |                                |                                    |                                    |                                   |          |                          |                 |                          |                    |                          |                  |                          |                  |                          |         |                          |     |                          |                     |                          |            |                          |                     |                          |                  |                          |                       |                          |               |                          |          |                          |                                                                                                                                                          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| Crimp/Kink/Ripple/Wave                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <input type="checkbox"/>                                                                                                                                                                  | Inspection Incomplete/Unqualified                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <input type="checkbox"/>                                      | Wrong Stock Pulled                                                                   | <input type="checkbox"/> | Part Lost/Missing                  | <input type="checkbox"/>            |                                    |                                      |                                               |                                    |                                            |                                  |                                        |                                    |                                              |                                |                                    |                                    |                                   |          |                          |                 |                          |                    |                          |                  |                          |                  |                          |         |                          |     |                          |                     |                          |            |                          |                     |                          |                  |                          |                       |                          |               |                          |          |                          |                                                                                                                                                          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| Cuffs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <input type="checkbox"/>                                                                                                                                                                  | Contamination                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <input type="checkbox"/>                                      | Out of Sequence                                                                      | <input type="checkbox"/> | Part Moved                         | <input type="checkbox"/>            |                                    |                                      |                                               |                                    |                                            |                                  |                                        |                                    |                                              |                                |                                    |                                    |                                   |          |                          |                 |                          |                    |                          |                  |                          |                  |                          |         |                          |     |                          |                     |                          |            |                          |                     |                          |                  |                          |                       |                          |               |                          |          |                          |                                                                                                                                                          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| Crushing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <input type="checkbox"/>                                                                                                                                                                  | Countersink                                                                                                                                                                                                                                                                                                                                          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          |                                    |                                              |                                |                                    |                                    |                                   |          |                          |                 |                          |                    |                          |                  |                          |                  |                          |         |                          |     |                          |                     |                          |            |                          |                     |                          |                  |                          |                       |                          |               |                          |          |                          |                                                                                                                                                          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| Heat Treat                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <input type="checkbox"/>                                                                                                                                                                  | Cut Too Short                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <input type="checkbox"/>                                      | Mislabeled                                                                           | <input type="checkbox"/> | Finish                             | <input type="checkbox"/>            |                                    |                                      |                                               |                                    |                                            |                                  |                                        |                                    |                                              |                                |                                    |                                    |                                   |          |                          |                 |                          |                    |                          |                  |                          |                  |                          |         |                          |     |                          |                     |                          |            |                          |                     |                          |                  |                          |                       |                          |               |                          |          |                          |                                                                                                                                                          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| Wave/Twist in Tube                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <input type="checkbox"/>                                                                                                                                                                  | Instructions Incomplete/Unclear                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <input type="checkbox"/>                                      | Fit/Function                                                                         | <input type="checkbox"/> | Misread                            | <input type="checkbox"/>            |                                    |                                      |                                               |                                    |                                            |                                  |                                        |                                    |                                              |                                |                                    |                                    |                                   |          |                          |                 |                          |                    |                          |                  |                          |                  |                          |         |                          |     |                          |                     |                          |            |                          |                     |                          |                  |                          |                       |                          |               |                          |          |                          |                                                                                                                                                          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| Marks/Chatter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <input type="checkbox"/>                                                                                                                                                                  | Drill Holes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <input type="checkbox"/>                                      | Misaligned/off center                                                                | <input type="checkbox"/> | Turning Sequence                   | <input type="checkbox"/>            |                                    |                                      |                                               |                                    |                                            |                                  |                                        |                                    |                                              |                                |                                    |                                    |                                   |          |                          |                 |                          |                    |                          |                  |                          |                  |                          |         |                          |     |                          |                     |                          |            |                          |                     |                          |                  |                          |                       |                          |               |                          |          |                          |                                                                                                                                                          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| OTHER :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                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**Work Order ID 151207**

September 14, 2016 1:08:03 PM

**\*151207\***

Page 3

Item ID: D212-725-1-007

Accept

**\*N900040100\***

Setup Start

**\*NS1\***

Revision ID:

Stop

**\*NS2\***

Item Name: Collective Bell Crank

Start Date: 9/14/2016 Start Qty: 6.00

**\*6\***

Cust Item ID:

Required Date: 10/11/2016 Req'd Qty: 6.00

**\*6\***

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start

**\*NR1\***

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop

**\*NR2\***

| Sequence ID/<br>Work Center ID | Operation<br>Description                                                                                               | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp             |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------------------|
| 140                            | QC8- Inspect parts - second check                                                                                      | 0.00                 |         |        |              | 6             | 0             |                  | DAS<br>44<br>9-89 16-10-18 |
| <b>*140*</b>                   | Memo                                                                                                                   | 0.02                 |         |        |              |               |               |                  |                            |
| QC                             |                                                                                                                        |                      |         |        |              |               |               |                  |                            |
| Quality Control                |                                                                                                                        |                      |         |        |              |               |               |                  |                            |
| 145                            |                                                                                                                        | 0.00                 |         |        |              |               |               |                  | DAS<br>13<br>9-89          |
| <b>*145*</b>                   | Memo                                                                                                                   | 120.00               |         |        |              |               |               |                  |                            |
| Outsource2                     |                                                                                                                        |                      |         |        |              |               |               |                  |                            |
| Outsource process - NDT        | OUTSIDE SERVICES-MACH<br>Issue P/O: <u>33960</u><br>LPI Per ASTM 1417 LEVEL 2<br>Certificate of conformity is required |                      |         |        |              |               |               |                  |                            |
| 146                            | Receiving                                                                                                              |                      |         |        |              |               |               |                  |                            |
| 147                            | QC                                                                                                                     |                      |         |        |              |               |               |                  |                            |
| 150                            | Chemical Conversion Coat per QSI005 4.1                                                                                | 0.00                 |         |        |              |               |               |                  |                            |
| <b>*150*</b>                   | Memo                                                                                                                   | 0.04                 |         |        |              |               |               |                  |                            |
| HandFinish                     |                                                                                                                        |                      |         |        |              |               |               |                  |                            |
| Hand Finishing                 |                                                                                                                        |                      |         |        |              |               |               |                  |                            |

OCT 19 2016

6x SP 16-10-19

6x SP 16-10-18

16 0 2016/10/19  
BER



DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

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| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>             Skid-tube <input type="checkbox"/><br/>             Machining <input type="checkbox"/><br/>             Thermoforming <input type="checkbox"/><br/>             Large Fab <input type="checkbox"/> </div> <div>             Cross tube <input type="checkbox"/><br/>             Small Fab <input type="checkbox"/><br/>             Finishing <input type="checkbox"/><br/>             Composite <input type="checkbox"/> </div> <div>             Water Jet <input type="checkbox"/><br/>             Prod. Eng. Coord. <input type="checkbox"/><br/>             Rec/Store/Packaging <input type="checkbox"/><br/>             Supplier <input type="checkbox"/> </div> <div>             Engineering <input type="checkbox"/><br/>             Quality <input type="checkbox"/><br/>             Other <input type="checkbox"/> </div> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                                 |  |
| Date :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Step #:                                                                                                                                                                            | QTY Effective :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | MRB (QSI042) Approval                           |  |
| Description Work Order Deviation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                    | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |                                                 |  |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | Lead hand / Supervisor<br>Approval Verification |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | QC / QA Coordinator<br>Approval                 |  |
| <b>Root Cause</b><br><div style="display: flex; justify-content: space-between;"> <div>             Environment <input type="checkbox"/><br/>             Design <input type="checkbox"/><br/>             Doc/Data <input type="checkbox"/><br/>             Equip/Tooling <input type="checkbox"/><br/>             Handling/Pre <input type="checkbox"/><br/>             Material <input type="checkbox"/><br/>             Internal Transport <input type="checkbox"/><br/>             Tribal Knowledge <input type="checkbox"/><br/>             LOA <input type="checkbox"/><br/>             Substation <input type="checkbox"/><br/>             Past Expiry Date <input type="checkbox"/><br/>             Misidentified <input type="checkbox"/> </div> <div>             No Re-verification <input type="checkbox"/><br/>             Operator <input type="checkbox"/><br/>             Offset/Setup <input type="checkbox"/><br/>             Supplier <input type="checkbox"/><br/>             Training <input type="checkbox"/><br/>             Use for Testing <input type="checkbox"/><br/>             Poor Information <input type="checkbox"/><br/>             Rushing <input type="checkbox"/><br/>             Product Improvement <input type="checkbox"/><br/>             Process Improvement <input type="checkbox"/><br/>             Manufacturing Process <input type="checkbox"/><br/>             Past Due <input type="checkbox"/> </div> </div> |                                                                                                                                                                                    | <b>FAULT CATEGORY</b><br><div style="display: flex; justify-content: space-between;"> <div>             Pressure/Forced <input type="checkbox"/><br/>             Bending <input type="checkbox"/><br/>             Centre Not Concentric <input type="checkbox"/><br/>             Cracks <input type="checkbox"/><br/>             Crimp/Kink/Ripple/Wave <input type="checkbox"/><br/>             Cuffs <input type="checkbox"/><br/>             Crushing <input type="checkbox"/><br/>             Heat Treat <input type="checkbox"/><br/>             Wave/Twist in Tube <input type="checkbox"/><br/>             Marks/Chatter <input type="checkbox"/> </div> <div>             Temperature/Cure <input type="checkbox"/><br/>             Set-up <input type="checkbox"/><br/>             BOM/Route <input type="checkbox"/><br/>             Broken/Damage/Defect <input type="checkbox"/><br/>             Inspection Incomplete/Unqualified <input type="checkbox"/><br/>             Contamination <input type="checkbox"/><br/>             Countersink <input type="checkbox"/><br/>             Cut Too Short <input type="checkbox"/><br/>             Instructions Incomplete/Unclear <input type="checkbox"/><br/>             Drill Holes <input type="checkbox"/> </div> <div>             Power Loss/Surge <input type="checkbox"/><br/>             Folio/Program <input type="checkbox"/><br/>             Grain <input type="checkbox"/><br/>             Weld <input type="checkbox"/><br/>             Wrong Stock Pulled <input type="checkbox"/><br/>             Out of Sequence <input type="checkbox"/><br/>             Off-set <input type="checkbox"/><br/>             Misabeled <input type="checkbox"/><br/>             Fit/Function <input type="checkbox"/><br/>             Misaligned/off center <input type="checkbox"/> </div> <div>             Positioned Wrong <input type="checkbox"/><br/>             Outside Dimensions <input type="checkbox"/><br/>             Over/Under tolerance <input type="checkbox"/><br/>             Part Incorrect <input type="checkbox"/><br/>             Part Lost/Missing <input type="checkbox"/><br/>             Part Moved <input type="checkbox"/><br/>             Drawing <input type="checkbox"/><br/>             Finish <input type="checkbox"/><br/>             Misread <input type="checkbox"/><br/>             Turning Sequence <input type="checkbox"/> </div> </div> |  |                                                 |  |
| OTHER : <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |                                                 |  |

**Work Order ID 151207**

September 14, 2016 1:08:03 PM

**\*151207\***

Page 4

Item ID: D212-725-1-007

Accept

**\*N900040100\***

Setup Start

**\*NS1\***

Revision ID:

Stop

**\*NS2\***

Item Name: Collective Bell Crank

Start Date: 9/14/2016 Start Qty: 6.00

**\*6\***

Cust Item ID:

Required Date: 10/11/2016 Req'd Qty: 6.00

**\*6\***

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start

**\*NR1\***

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop

**\*NR2\***

| Sequence ID/<br>Work Center ID | Operation<br>Description                        | Set Up/<br>Run Hours | Tool ID | Tool # | Plan<br>Code      | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|-------------------------------------------------|----------------------|---------|--------|-------------------|---------------|---------------|------------------|----------------|
| 160                            | QC3- Inspect Part Finish                        | 0.00                 |         |        | DAS<br>30<br>9-89 | 6             |               |                  | OCT 19 2016    |
| <b>*160*</b>                   |                                                 |                      |         |        |                   |               |               |                  |                |
| QC                             | Memo                                            | 0.01                 |         |        |                   |               |               |                  |                |
| Quality Control                |                                                 |                      |         |        |                   |               |               |                  |                |
| 170                            | Identify as per dwg & Stock Location: <u>GA</u> | 0.00                 |         |        | DAS<br>30<br>9-89 | 6             |               |                  | OCT 19 2016    |
| <b>*170*</b>                   |                                                 |                      |         |        |                   |               |               |                  |                |
| Packaging                      | Memo                                            | 0.01                 |         |        |                   |               |               |                  |                |
| Packaging                      |                                                 |                      |         |        |                   |               |               |                  |                |
| 180                            | QC21- Final Inspection - Work Order Release     | 0.00                 |         |        |                   |               |               |                  |                |
| <b>*180*</b>                   |                                                 |                      |         |        |                   |               |               |                  |                |
| QC                             | Memo                                            | 0.10                 |         |        |                   |               |               |                  |                |
| Quality Control                |                                                 |                      |         |        |                   |               |               |                  |                |
|                                |                                                 |                      |         |        | DAS<br>21<br>9-89 |               |               |                  | OCT 19 2016    |
|                                |                                                 |                      |         |        | DAS<br>21<br>9-89 |               |               |                  | OCT 19 2016    |

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

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| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div> |  |  |                                                                                                                                                     |  |  |
| Date :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  | Step #:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  | QTY Effective :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  | MRB (QSI042) Approval<br><br><br>Completed By<br><br><br>Lead hand / Supervisor<br>Approval Verification<br><br><br>QC / QA Coordinator<br>Approval |  |  |
| Description Work Order Deviation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |                                                                                                                                                     |  |  |
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| <b>Root Cause</b><br><div style="display: flex; justify-content: space-between;"> <div>           Environment <input type="checkbox"/><br/>           Design <input type="checkbox"/><br/>           Doc/Data <input type="checkbox"/><br/>           Equip/Tooling <input type="checkbox"/><br/>           Handling/Pre <input type="checkbox"/><br/>           Material <input type="checkbox"/><br/>           Internal Transport <input type="checkbox"/><br/>           Tribal Knowledge <input type="checkbox"/><br/>           LOA <input type="checkbox"/><br/>           Substation <input type="checkbox"/><br/>           Past Expiry Date <input type="checkbox"/><br/>           Misidentified <input type="checkbox"/> </div> <div>           No Re-verification <input type="checkbox"/><br/>           Operator <input type="checkbox"/><br/>           Offset/Setup <input type="checkbox"/><br/>           Supplier <input type="checkbox"/><br/>           Training <input type="checkbox"/><br/>           Use for Testing <input type="checkbox"/><br/>           Poor Information <input type="checkbox"/><br/>           Rushing <input type="checkbox"/><br/>           Product Improvement <input type="checkbox"/><br/>           Process Improvement <input type="checkbox"/><br/>           Manufacturing Process <input type="checkbox"/><br/>           Past Due <input type="checkbox"/> </div> </div> |  | <b>FAULT CATEGORY</b><br><div style="display: flex; justify-content: space-between;"> <div>           Pressure/Forced <input type="checkbox"/><br/>           Bending <input type="checkbox"/><br/>           Centre Not Concentric <input type="checkbox"/><br/>           Cracks <input type="checkbox"/><br/>           Crimp/Kink/Ripple/Wave <input type="checkbox"/><br/>           Cuffs <input type="checkbox"/><br/>           Crushing <input type="checkbox"/><br/>           Heat Treat <input type="checkbox"/><br/>           Wave/Twist in Tube <input type="checkbox"/><br/>           Marks/Chatter <input type="checkbox"/> </div> <div>           Temperature/Cure <input type="checkbox"/><br/>           Set-up <input type="checkbox"/><br/>           BOM/Route <input type="checkbox"/><br/>           Broken/Damage/Defect <input type="checkbox"/><br/>           Inspection Incomplete/Unqualified <input type="checkbox"/><br/>           Contamination <input type="checkbox"/><br/>           Countersink <input type="checkbox"/><br/>           Cut Too Short <input type="checkbox"/><br/>           Instructions Incomplete/Unclear <input type="checkbox"/><br/>           Drill Holes <input type="checkbox"/> </div> <div>           Power Loss/Surge <input type="checkbox"/><br/>           Folio/Program <input type="checkbox"/><br/>           Grain <input type="checkbox"/><br/>           Weld <input type="checkbox"/><br/>           Wrong Stock Pulled <input type="checkbox"/><br/>           Out of Sequence <input type="checkbox"/><br/>           Off-set <input type="checkbox"/><br/>           Misabeled <input type="checkbox"/><br/>           Fit/Function <input type="checkbox"/><br/>           Misaligned/off center <input type="checkbox"/> </div> <div>           Positioned Wrong <input type="checkbox"/><br/>           Outside Dimensions <input type="checkbox"/><br/>           Over/Under tolerance <input type="checkbox"/><br/>           Part Incorrect <input type="checkbox"/><br/>           Part Lost/Missing <input type="checkbox"/><br/>           Part Moved <input type="checkbox"/><br/>           Drawing <input type="checkbox"/><br/>           Finish <input type="checkbox"/><br/>           Misread <input type="checkbox"/><br/>           Turning Sequence <input type="checkbox"/> </div> </div> |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |                                                                                                                                                     |  |  |
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September 14, 2016 1:08:01 PM

**\*151207\***

**\*D212-725-1-007\***

**Required Date:** 10/11/2016

**Required Qty: 6.00**

| Component Item ID/<br>Item Name | Replacement<br>Item ID | Mfg/<br>Purch | Bin<br>Item | Primary<br>Location | Last<br>Location | Route<br>Seq ID | Unit of<br>Measure | Qty on<br>Hand | Qty per Kit     | Total<br>Qty | Qty<br>Issued | Date<br>Issued | Status                     |
|---------------------------------|------------------------|---------------|-------------|---------------------|------------------|-----------------|--------------------|----------------|-----------------|--------------|---------------|----------------|----------------------------|
| D6101-005                       |                        | Manufactured  | No          |                     |                  |                 | Each               | 43.0000        |                 | 6            |               |                |                            |
|                                 |                        |               |             |                     |                  |                 |                    |                |                 | **           | 6+1           |                | DAS<br>20<br>9-89 16-09-20 |
| *D6101-005*                     |                        |               |             |                     |                  |                 |                    |                |                 |              |               |                |                            |
| Saddle Billet                   |                        |               |             |                     |                  |                 |                    |                |                 |              |               |                |                            |
|                                 |                        |               |             | <u>Location</u>     |                  |                 | <u>Loc Qty</u>     |                | <u>Loc Code</u> |              |               |                |                            |
|                                 |                        |               |             | MAT040              |                  |                 | 23                 |                |                 |              |               |                |                            |
|                                 |                        |               |             | 147755              |                  |                 | 3                  |                |                 |              |               |                |                            |
|                                 |                        |               |             | 149947              |                  |                 | 20                 |                |                 | 6+1          |               |                |                            |
|                                 |                        |               |             | MAT041              |                  |                 | 20                 |                |                 |              |               |                |                            |
|                                 |                        |               |             | 149199              |                  |                 | 20                 |                |                 |              |               |                |                            |

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

## WORK ORDER NON-CONFORMANCE / UPDATE

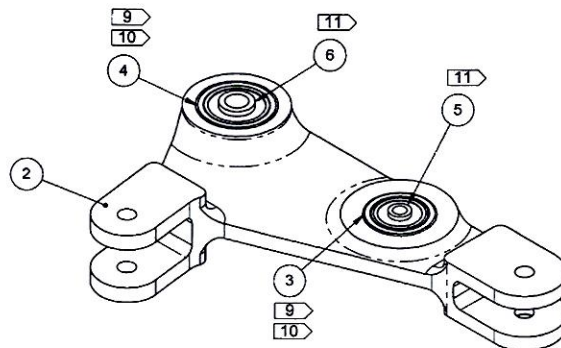


QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

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| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div>                                                                                                                                                                                                                                                       |  |  |                                                                                                                                                     |  |  |
| Date :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  | Step #:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | QTY Effective :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  | MRB (QSI042) Approval<br><br><br>Completed By<br><br><br>Lead hand / Supervisor<br>Approval Verification<br><br><br>QC / QA Coordinator<br>Approval |  |  |
| Description Work Order Deviation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |  |                                                                                                                                                     |  |  |
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| <b>Root Cause</b><br><div style="display: flex; justify-content: space-between;"> <div>           Environment <input type="checkbox"/><br/>           Design <input type="checkbox"/><br/>           Doc/Data <input type="checkbox"/><br/>           Equip/Tooling <input type="checkbox"/><br/>           Handling/Pre <input type="checkbox"/><br/>           Material <input type="checkbox"/><br/>           Internal Transport <input type="checkbox"/><br/>           Tribal Knowledge <input type="checkbox"/><br/>           LOA <input type="checkbox"/><br/>           Substation <input type="checkbox"/><br/>           Past Expiry Date <input type="checkbox"/><br/>           Misidentified <input type="checkbox"/> </div> <div>           No Re-verification <input type="checkbox"/><br/>           Operator <input type="checkbox"/><br/>           Offset/Setup <input type="checkbox"/><br/>           Supplier <input type="checkbox"/><br/>           Training <input type="checkbox"/><br/>           Use for Testing <input type="checkbox"/><br/>           Poor Information <input type="checkbox"/><br/>           Rushing <input type="checkbox"/><br/>           Product Improvement <input type="checkbox"/><br/>           Process Improvement <input type="checkbox"/><br/>           Manufacturing Process <input type="checkbox"/><br/>           Past Due <input type="checkbox"/> </div> </div> |  | <b>FAULT CATEGORY</b><br><div style="display: flex; justify-content: space-between;"> <div>           Pressure/Forced <input type="checkbox"/><br/>           Bending <input type="checkbox"/><br/>           Centre Not Concentric <input type="checkbox"/><br/>           Cracks <input type="checkbox"/><br/>           Crimp/Kink/Ripple/Wave <input type="checkbox"/><br/>           Cuffs <input type="checkbox"/><br/>           Crushing <input type="checkbox"/><br/>           Heat Treat <input type="checkbox"/><br/>           Wave/Twist in Tube <input type="checkbox"/><br/>           Marks/Chatter <input type="checkbox"/> </div> <div>           Temperature/Cure <input type="checkbox"/><br/>           Set-up <input type="checkbox"/><br/>           BOM/Route <input type="checkbox"/><br/>           Broken/Damage/Defect <input type="checkbox"/><br/>           Inspection Incomplete/Unqualified <input type="checkbox"/><br/>           Contamination <input type="checkbox"/><br/>           Countersink <input type="checkbox"/><br/>           Cut Too Short <input type="checkbox"/><br/>           Instructions Incomplete/Unclear <input type="checkbox"/><br/>           Drill Holes <input type="checkbox"/> </div> </div> |  | <div style="display: flex; justify-content: space-between;"> <div>           Power Loss/Surge <input type="checkbox"/><br/>           Folio/Program <input type="checkbox"/><br/>           Grain <input type="checkbox"/><br/>           Weld <input type="checkbox"/><br/>           Wrong Stock Pulled <input type="checkbox"/><br/>           Out of Sequence <input type="checkbox"/><br/>           Off-set <input type="checkbox"/><br/>           Misabeled <input type="checkbox"/><br/>           Fit/Function <input type="checkbox"/><br/>           Misaligned/off center <input type="checkbox"/> </div> <div>           Positioned Wrong <input type="checkbox"/><br/>           Outside Dimensions <input type="checkbox"/><br/>           Over/Under tolerance <input type="checkbox"/><br/>           Part Incorrect <input type="checkbox"/><br/>           Part Lost/Missing <input type="checkbox"/><br/>           Part Moved <input type="checkbox"/><br/>           Drawing <input type="checkbox"/><br/>           Finish <input type="checkbox"/><br/>           Misread <input type="checkbox"/><br/>           Turning Sequence <input type="checkbox"/> </div> </div> |  |  |                                                                                                                                                     |  |  |
| OTHER : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |  |                                                                                                                                                     |  |  |

| ITEM | QTY<br>-901 | PART NUMBER    | DESCRIPTION                |
|------|-------------|----------------|----------------------------|
| 1    | X           | D212-725-1-901 | COLLECTIVE BELLCRANK ASS'Y |
| 2    | 1           | D212-725-1-007 | COLLECTIVE BELLCRANK       |
| 3    | 1           | 120-013-3A     | SLEEVE                     |
| 4    | 1           | 120-015-5A     | SLEEVE                     |
| 5    | 1           | MS27643-3      | BEARING                    |
| 6    | 1           | MS27647-5      | BEARING                    |



# **D212-725-1-901 COLLECTIVE BELLCRANK ASSY**

**CRITICAL PART**  
MRB DECISIONS ON THIS PART MAY ONLY BE PERFORMED BY DART DE#02. ANY CHANGES TO THE DESIGN, MANUFACTURING PROCESS, APPROVED OPERATING ENVIRONMENT, AND DESIGN LOADING SPECTRUM WILL REQUIRE A REVIEW OF THE FATIGUE EVALUATION FOR THIS PART.

## **NOTES:**

- 1) MATERIAL: N/A
- 2) FINISH: PRIME YELLOW PER DART QSI 005 4.2
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
- 7) WEIGHT: 0.68 lbs
- 8) SWAGE/STAKE PER QSI 002
- 9) SLEEVE ID AND OD MAY BE ADJUSTED TO PROVIDE PROPER FIT
- 10) SLEEVE SHOULD FIT INTO BELLCRANK USING FINGER PRESSURE ONLY
- 11) BEARING SHOULD FIT INTO SLEEVE USING FINGER PRESSURE ONLY

~~SEP 13 2018~~

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 451207

1609-13 8U

**RELEASED**  
R 2011-08-25

|                                                                                                                                                                                                                                                                               |             |        |              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------|--------------|
| A NEW ISSUE                                                                                                                                                                                                                                                                   |             | RF     | 11.02.24     |
| REV.                                                                                                                                                                                                                                                                          | DESCRIPTION | BY     | DATE         |
| DESIGN                                                                                                                                                                                                                                                                        | DC          |        |              |
| DRAWN                                                                                                                                                                                                                                                                         | RF          |        |              |
| CHECKED                                                                                                                                                                                                                                                                       |             |        |              |
| MFG. APPR.                                                                                                                                                                                                                                                                    |             |        |              |
| APPROVED                                                                                                                                                                                                                                                                      |             |        |              |
| DE APPR.                                                                                                                                                                                                                                                                      |             |        |              |
| DATE                                                                                                                                                                                                                                                                          | 11.02.24    |        |              |
| DART AEROSPACE LTD<br>HAWKESBURY, ONTARIO, CANADA                                                                                                                                                                                                                             |             | REV. A | SHEET 1 OF 2 |
| DRAWING NO. D4215                                                                                                                                                                                                                                                             |             | TITLE  | SCALE        |
| COLLECTIVE BELLCRANK                                                                                                                                                                                                                                                          |             |        | NTS          |
| COPYRIGHT © 2011 BY DART AEROSPACE LTD<br>THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL, AND IS SUPPLIED ON THE EXPRESS UNDERSTANDING THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD. |             |        |              |



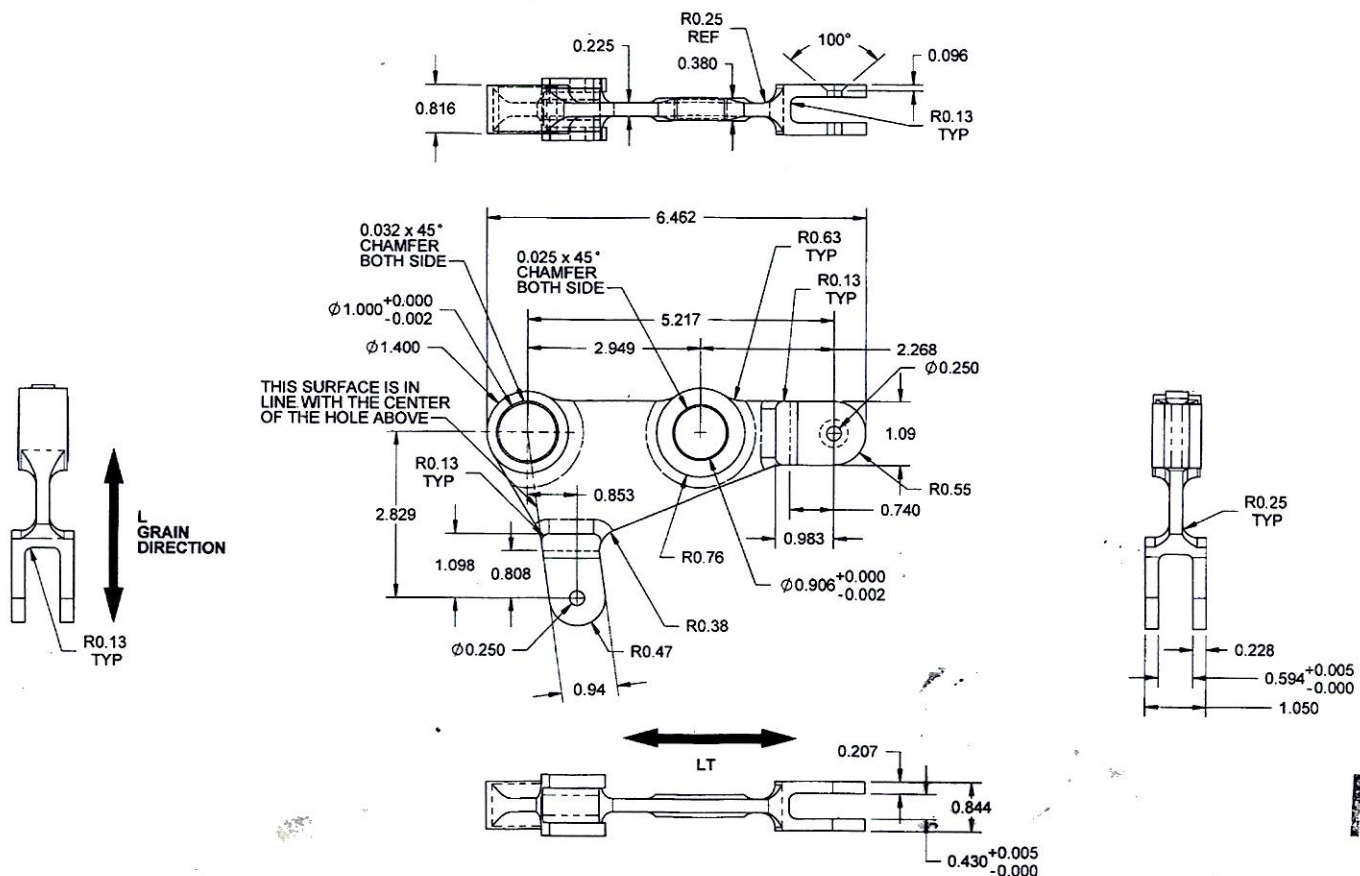
DQA: \_\_\_\_\_ Date: \_\_\_\_\_

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

|                                                                                                                                                                                                                                                                             |                                                |                                                                                                                                                                                    |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                               |  |                       |                                                 |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|--|-----------------------|-------------------------------------------------|--|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                |                                                | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> |                                                            | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div> |                                               |  |                       |                                                 |  |
| Date : _____                                                                                                                                                                                                                                                                |                                                | Step #: _____                                                                                                                                                                      |                                                            | QTY Effective : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                               |  | MRB (QSI042) Approval |                                                 |  |
| Description Work Order Deviation                                                                                                                                                                                                                                            |                                                |                                                                                                                                                                                    |                                                            | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                               |  |                       | Completed By                                    |  |
| <div style="transform: rotate(180deg);">             WORK ORDER<br/>             WITHOUT NOTICE<br/>             SUBJECT TO AGREEMENT<br/>             UNCONTROLLED COPY<br/>             ENGINEERING<br/>             RETURN TO<br/>             2ND COPY           </div> |                                                |                                                                                                                                                                                    |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                               |  |                       | Lead hand / Supervisor<br>Approval Verification |  |
|                                                                                                                                                                                                                                                                             |                                                |                                                                                                                                                                                    |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                               |  |                       | QC / QA Coordinator<br>Approval                 |  |
|                                                                                                                                                                                                                                                                             |                                                |                                                                                                                                                                                    |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                               |  |                       |                                                 |  |
| Root Cause                                                                                                                                                                                                                                                                  |                                                |                                                                                                                                                                                    |                                                            | FAULT CATEGORY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                               |  |                       |                                                 |  |
| Environment <input type="checkbox"/>                                                                                                                                                                                                                                        | No Re-verification <input type="checkbox"/>    | Pressure/Forced <input type="checkbox"/>                                                                                                                                           | Temperature/Cure <input type="checkbox"/>                  | Power Loss/Surge <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Positioned Wrong <input type="checkbox"/>     |  |                       |                                                 |  |
| Design <input type="checkbox"/>                                                                                                                                                                                                                                             | Operator <input type="checkbox"/>              | Bending <input type="checkbox"/>                                                                                                                                                   | Set-up <input type="checkbox"/>                            | Folio/Program <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Outside Dimensions <input type="checkbox"/>   |  |                       |                                                 |  |
| Doc/Data <input type="checkbox"/>                                                                                                                                                                                                                                           | Offset/Setup <input type="checkbox"/>          | Centre Not Concentric <input type="checkbox"/>                                                                                                                                     | BOM/Route <input type="checkbox"/>                         | Grain <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Over/Under tolerance <input type="checkbox"/> |  |                       |                                                 |  |
| Equip/Tooling <input type="checkbox"/>                                                                                                                                                                                                                                      | Supplier <input type="checkbox"/>              | Cracks <input type="checkbox"/>                                                                                                                                                    | Broken/Damage/Defect <input type="checkbox"/>              | Weld <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Part Incorrect <input type="checkbox"/>       |  |                       |                                                 |  |
| Handling/Pre <input type="checkbox"/>                                                                                                                                                                                                                                       | Training <input type="checkbox"/>              | Crimp/Kink/Ripple/Wave <input type="checkbox"/>                                                                                                                                    | Inspection Incomplete/Unqualified <input type="checkbox"/> | Wrong Stock Pulled <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Part Lost/Missing <input type="checkbox"/>    |  |                       |                                                 |  |
| Material <input type="checkbox"/>                                                                                                                                                                                                                                           | Use for Testing <input type="checkbox"/>       | Cuffs <input type="checkbox"/>                                                                                                                                                     | Contamination <input type="checkbox"/>                     | Out of Sequence <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Part Moved <input type="checkbox"/>           |  |                       |                                                 |  |
| Internal Transport <input type="checkbox"/>                                                                                                                                                                                                                                 | Poor Information <input type="checkbox"/>      | Crushing <input type="checkbox"/>                                                                                                                                                  | Countersink <input type="checkbox"/>                       | Off-set <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Drawing <input type="checkbox"/>              |  |                       |                                                 |  |
| Tribal Knowledge <input type="checkbox"/>                                                                                                                                                                                                                                   | Rushing <input type="checkbox"/>               | Heat Treat <input type="checkbox"/>                                                                                                                                                | Cut Too Short <input type="checkbox"/>                     | Mislabeled <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Finish <input type="checkbox"/>               |  |                       |                                                 |  |
| LOA <input type="checkbox"/>                                                                                                                                                                                                                                                | Product Improvement <input type="checkbox"/>   | Wave/Twist in Tube <input type="checkbox"/>                                                                                                                                        | Instructions Incomplete/Unclear <input type="checkbox"/>   | Fit/Function <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Misread <input type="checkbox"/>              |  |                       |                                                 |  |
| Substation <input type="checkbox"/>                                                                                                                                                                                                                                         | Process Improvement <input type="checkbox"/>   | Marks/Chatter <input type="checkbox"/>                                                                                                                                             | Drill Holes <input type="checkbox"/>                       | Misaligned/off center <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Turning Sequence <input type="checkbox"/>     |  |                       |                                                 |  |
| Past Expiry Date <input type="checkbox"/>                                                                                                                                                                                                                                   | Manufacturing Process <input type="checkbox"/> |                                                                                                                                                                                    |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                               |  |                       |                                                 |  |
| Misidentified <input type="checkbox"/>                                                                                                                                                                                                                                      | Past Due <input type="checkbox"/>              | OTHER : _____                                                                                                                                                                      |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                               |  |                       |                                                 |  |



**RELEASED**  
2011-08-25  
JW

**NOTES:**

- 1) MATERIAL: 7075-T7351 ALUMINUM  
PER QQ-A-250/12
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
- 7) WEIGHT: 0.39 lbs
- 8) LPI PER ASTM 1417 LEVEL 2
- 9) SURFACE FINISH TO BE NO GREATER THAN 80 MICROINCH

**D212-725-1-007 COLLECTIVE BELLCRANK**

**CRITICAL PART**

MFG DECISIONS ON THIS PART MAY ONLY BE PERFORMED BY DART DE#02. ANY CHANGES TO THE DESIGN, MANUFACTURING PROCESS, APPROVED OPERATING ENVIRONMENT, AND DESIGN LOADING SPECTRUM WILL REQUIRE A REVIEW OF THE FATIGUE EVALUATION FOR THIS PART.

|            |                    |                                                                                                                                                                                                                                                                                |              |
|------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| DESIGN     | DC                 | <b>DART AEROSPACE LTD</b>                                                                                                                                                                                                                                                      |              |
| DRAWN      | RF                 | HAWKESBURY, ONTARIO, CANADA                                                                                                                                                                                                                                                    |              |
| CHECKED    | <i>[Signature]</i> | DRAWING NO.                                                                                                                                                                                                                                                                    | REV. A       |
| MFG. APPR. | <i>[Signature]</i> | <b>D4215</b>                                                                                                                                                                                                                                                                   | SHEET 2 OF 2 |
| APPROVED   | <i>[Signature]</i> | TITLE                                                                                                                                                                                                                                                                          | SCALE        |
| DE APPR.   | <i>[Signature]</i> | <b>COLLECTIVE BELLCRANK</b>                                                                                                                                                                                                                                                    | NTS          |
| DATE       | 11.02.24           | <small>COPYRIGHT © 2011 BY DART AEROSPACE LTD<br/>THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small> |              |

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |                                              |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------|--|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |                                              |  |
| Date : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Step #: _____                                                                                                                                                                      | QTY Effective : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | MRB (QSI042) Approval                        |  |
| Description Work Order Deviation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                    | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  | Completed By                                 |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  | Lead hand / Supervisor Approval Verification |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  | QC / QA Coordinator Approval                 |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |                                              |  |
| <b>Root Cause</b><br><div style="display: flex; justify-content: space-between;"> <div>           Environment <input type="checkbox"/><br/>           Design <input type="checkbox"/><br/>           Doc/Data <input type="checkbox"/><br/>           Equip/Tooling <input type="checkbox"/><br/>           Handling/Pre <input type="checkbox"/><br/>           Material <input type="checkbox"/><br/>           Internal Transport <input type="checkbox"/><br/>           Tribal Knowledge <input type="checkbox"/><br/>           LOA <input type="checkbox"/><br/>           Substation <input type="checkbox"/><br/>           Past Expiry Date <input type="checkbox"/><br/>           Misidentified <input type="checkbox"/> </div> <div>           No Re-verification <input type="checkbox"/><br/>           Operator <input type="checkbox"/><br/>           Offset/Setup <input type="checkbox"/><br/>           Supplier <input type="checkbox"/><br/>           Training <input type="checkbox"/><br/>           Use for Testing <input type="checkbox"/><br/>           Poor Information <input type="checkbox"/><br/>           Rushing <input type="checkbox"/><br/>           Product Improvement <input type="checkbox"/><br/>           Process Improvement <input type="checkbox"/><br/>           Manufacturing Process <input type="checkbox"/><br/>           Past Due <input type="checkbox"/> </div> </div> |                                                                                                                                                                                    | <b>FAULT CATEGORY</b><br><div style="display: flex; justify-content: space-between;"> <div>           Pressure/Forced <input type="checkbox"/><br/>           Bending <input type="checkbox"/><br/>           Centre Not Concentric <input type="checkbox"/><br/>           Cracks <input type="checkbox"/><br/>           Crimp/Kink/Ripple/Wave <input type="checkbox"/><br/>           Cuffs <input type="checkbox"/><br/>           Crushing <input type="checkbox"/><br/>           Heat Treat <input type="checkbox"/><br/>           Wave/Twist in Tube <input type="checkbox"/><br/>           Marks/Chatter <input type="checkbox"/> </div> <div>           Temperature/Cure <input type="checkbox"/><br/>           Set-up <input type="checkbox"/><br/>           BOM/Route <input type="checkbox"/><br/>           Broken/Damage/Defect <input type="checkbox"/><br/>           Inspection Incomplete/Unqualified <input type="checkbox"/><br/>           Contamination <input type="checkbox"/><br/>           Countersink <input type="checkbox"/><br/>           Cut Too Short <input type="checkbox"/><br/>           Instructions Incomplete/Unclear <input type="checkbox"/><br/>           Drill Holes <input type="checkbox"/> </div> <div>           Power Loss/Surge <input type="checkbox"/><br/>           Folio/Program <input type="checkbox"/><br/>           Grain <input type="checkbox"/><br/>           Weld <input type="checkbox"/><br/>           Wrong Stock Pulled <input type="checkbox"/><br/>           Out of Sequence <input type="checkbox"/><br/>           Off-set <input type="checkbox"/><br/>           Mislabeled <input type="checkbox"/><br/>           Fit/Function <input type="checkbox"/><br/>           Misaligned/off center <input type="checkbox"/> </div> <div>           Positioned Wrong <input type="checkbox"/><br/>           Outside Dimensions <input type="checkbox"/><br/>           Over/Under tolerance <input type="checkbox"/><br/>           Part Incorrect <input type="checkbox"/><br/>           Part Lost/Missing <input type="checkbox"/><br/>           Part Moved <input type="checkbox"/><br/>           Drawing <input type="checkbox"/><br/>           Finish <input type="checkbox"/><br/>           Misread <input type="checkbox"/><br/>           Turning Sequence <input type="checkbox"/> </div> </div> |  |                                              |  |
| OTHER : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |                                              |  |



|                                           |               |                     |                |
|-------------------------------------------|---------------|---------------------|----------------|
| <b>DART AEROSPACE LTD</b>                 |               | <b>Work Order:</b>  | 151 207        |
| <b>Description:</b> Collective Bell Crank |               | <b>Part Number:</b> | D212-725-1-007 |
| <b>Inspection Dwg:</b> D4215              | <b>Rev:</b> A | <b>Page 1 of 1</b>  |                |

### FIRST ARTICLE INSPECTION DIMENSION SHEET

MRB decisions on this part may only be performed by Dart DE #02. Any changes to the design, manufacturing process, approved operating environment and design loading spectrum will require a review of the fatigue evaluation for this part.

|                     |       |       |                      | Record Actual Dimensions |        |        |        |        |
|---------------------|-------|-------|----------------------|--------------------------|--------|--------|--------|--------|
| Dim                 | Min   | Max   |                      | 1                        | 2      | 3      | 4      | 5      |
| <b>HAAS Section</b> |       |       |                      |                          |        |        |        |        |
| A                   | 0.806 | 0.826 |                      | 0.820                    | 0.822  | 0.818  | 0.818  | 0.818  |
| B                   | 0.215 | 0.235 |                      | 0.229                    | 0.233  | 0.231  | 0.227  | 0.231  |
| C                   | 0.370 | 0.390 |                      | 0.384                    | 0.385  | 0.383  | 0.383  | 0.383  |
| D                   | 0.220 | 0.280 |                      | 0.250                    | 0.250  | 0.250  | 0.250  | 0.250  |
| E                   | 99.5  | 100.5 |                      | 100°                     | 100°   | 100°   | 100°   | 100°   |
| F                   | 0.086 | 0.106 |                      | 0.096                    | 0.096  | 0.096  | 0.096  | 0.096  |
| G                   | 6.452 | 6.472 |                      | 6.462                    | 6.462  | 6.462  | 6.462  | 6.462  |
| H                   | 0.022 | 0.042 | 1 <sup>ST</sup> Side | 0.030                    | 0.030  | 0.030  | 0.032  | 0.030  |
| H                   | 0.022 | 0.042 | 2 <sup>nd</sup> Side | 0.030                    | 0.030  | 0.030  | 0.032  | 0.030  |
| I                   | 0.998 | 1.000 |                      | 1.0020                   | 1.0020 | 1.0020 | 1.0020 | 1.0020 |
| J                   | 1.390 | 1.410 |                      | 1.402                    | 1.400  | 1.400  | 1.401  | 1.401  |
| K                   | 2.944 | 2.954 |                      | 2.949                    | 2.949  | 2.949  | 2.949  | 2.949  |
| L                   | 2.263 | 2.273 |                      | 2.268                    | 2.268  | 2.268  | 2.268  | 2.268  |
| M                   | 0.249 | 0.255 |                      | 0.252                    | 0.252  | 0.252  | 0.252  | 0.252  |
| N                   | 0.973 | 0.993 |                      | 0.984                    | 0.984  | 0.981  | 0.982  | 0.981  |
| O                   | 0.904 | 0.906 |                      | 0.9080                   | 0.9080 | 0.9077 | 0.9078 | 0.9075 |
| P                   | 0.249 | 0.255 |                      | 0.252                    | 0.252  | 0.252  | 0.252  | 0.252  |
| Q                   | 0.015 | 0.035 | 1 <sup>ST</sup> Side | 0.022                    | 0.022  | 0.023  | 0.023  | 0.023  |
| Q                   | 0.015 | 0.035 | 2 <sup>nd</sup> Side | 0.022                    | 0.022  | 0.023  | 0.023  | 0.023  |
| R                   | 0.834 | 0.854 |                      | 0.845                    | 0.854  | 0.848  | 0.843  | 0.848  |
| S                   | 1.040 | 1.060 |                      | 1.050                    | 1.050  | 1.050  | 1.049  | 1.050  |
| T                   | 0.220 | 0.280 |                      | 0.250                    | 0.250  | 0.250  | 0.250  | 0.250  |

Measured by: B.A.

Date: 16/10/04

|                               |       |       |  |        |       |        |        |        |
|-------------------------------|-------|-------|--|--------|-------|--------|--------|--------|
| <b>Manual Milling Section</b> |       |       |  |        |       |        |        |        |
| AA                            | 0.218 | 0.238 |  | 0.226  | 0.226 | 0.228  | 0.227  | 0.228  |
| AB                            | 0.594 | 0.599 |  | 0.596  | 0.595 | 0.594  | 0.595  | 0.5945 |
| AC                            | 0.430 | 0.435 |  | 0.4305 | 0.430 | 0.4305 | 0.4315 | 0.4305 |
| AD                            | 0.197 | 0.217 |  | 0.205  | 0.210 | 0.206  | 0.203  | 0.205  |
| AE                            | 0.798 | 0.818 |  | 0.806  | 0.805 | 0.807  | 0.810  | 0.807  |
| AF                            | 0.730 | 0.750 |  | 0.744  | 0.743 | 0.743  | 0.743  | 0.743  |
| AG                            | 0.100 | 0.160 |  | 0.125  | 0.125 | 0.125  | 0.125  | 0.125  |
| <b>Accept/Reject</b>          |       |       |  |        |       |        |        |        |

Measured by: B.A.

Date: 16/10/04

Audited by: F.K.

Date: 16-10-18

Preliminary Approval:

Date:

| Rev | Date     | Change                                          | Revised by | Approved |
|-----|----------|-------------------------------------------------|------------|----------|
| B   | 08.12.02 | Dimensions updated per Dwg Rev. D               | KJ/DD      |          |
| C   | 10.02.02 | Dimensions updated                              | KJ         |          |
| D   | 10.06.02 | Dwg Rev updated                                 | KJ         |          |
| E   | 13.08.23 | Dwg D212-725-1 superceded by D4215              | KJ         |          |
| F   | 16.02.24 | Tolerances for dimensions G, K, L and R revised | KJ         |          |



DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

|                                                              |  |                                                                                                                                                                                    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |  |  |                                                                                                                   |  |
|--------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|-------------------------------------------------------------------------------------------------------------------|--|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____ |  | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> |  | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>             Skid-tube <input type="checkbox"/><br/>             Machining <input type="checkbox"/><br/>             Thermoforming <input type="checkbox"/><br/>             Large Fab <input type="checkbox"/> </div> <div>             Cross tube <input type="checkbox"/><br/>             Small Fab <input type="checkbox"/><br/>             Finishing <input type="checkbox"/><br/>             Composite <input type="checkbox"/> </div> <div>             Water Jet <input type="checkbox"/><br/>             Prod. Eng. Coord. <input type="checkbox"/><br/>             Rec/Store/Packaging <input type="checkbox"/><br/>             Supplier <input type="checkbox"/> </div> <div>             Engineering <input type="checkbox"/><br/>             Quality <input type="checkbox"/><br/>             Other <input type="checkbox"/> </div> </div> |  |  |  |                                                                                                                   |  |
| Date :                                                       |  | Step #:                                                                                                                                                                            |  | QTY Effective :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |  |  | <b>MRB (QSI042) Approval</b><br><br><div style="border: 1px solid black; height: 150px; margin-top: 10px;"></div> |  |
| Description Work Order Deviation                             |  |                                                                                                                                                                                    |  | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |  |  |                                                                                                                   |  |
|                                                              |  |                                                                                                                                                                                    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |  |  |                                                                                                                   |  |
|                                                              |  |                                                                                                                                                                                    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |  |  |                                                                                                                   |  |
|                                                              |  |                                                                                                                                                                                    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |  |  | Completed By                                                                                                      |  |
|                                                              |  |                                                                                                                                                                                    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |  |  | Lead hand / Supervisor<br>Approval Verification                                                                   |  |
|                                                              |  |                                                                                                                                                                                    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |  |  | QC / QA Coordinator<br>Approval                                                                                   |  |

| Root Cause                                  |  |                                                |  | FAULT CATEGORY                                  |  |                                                            |  |
|---------------------------------------------|--|------------------------------------------------|--|-------------------------------------------------|--|------------------------------------------------------------|--|
| Environment <input type="checkbox"/>        |  | No Re-verification <input type="checkbox"/>    |  | Pressure/Forced <input type="checkbox"/>        |  | Temperature/Cure <input type="checkbox"/>                  |  |
| Design <input type="checkbox"/>             |  | Operator <input type="checkbox"/>              |  | Bending <input type="checkbox"/>                |  | Set-up <input type="checkbox"/>                            |  |
| Doc/Data <input type="checkbox"/>           |  | Offset/Setup <input type="checkbox"/>          |  | Centre Not Concentric <input type="checkbox"/>  |  | BOM/Route <input type="checkbox"/>                         |  |
| Equip/Tooling <input type="checkbox"/>      |  | Supplier <input type="checkbox"/>              |  | Cracks <input type="checkbox"/>                 |  | Broken/Damage/Defect <input type="checkbox"/>              |  |
| Handling/Pre <input type="checkbox"/>       |  | Training <input type="checkbox"/>              |  | Crimp/Kink/Ripple/Wave <input type="checkbox"/> |  | Inspection Incomplete/Unqualified <input type="checkbox"/> |  |
| Material <input type="checkbox"/>           |  | Use for Testing <input type="checkbox"/>       |  | Cuffs <input type="checkbox"/>                  |  | Contamination <input type="checkbox"/>                     |  |
| Internal Transport <input type="checkbox"/> |  | Poor Information <input type="checkbox"/>      |  | Crushing <input type="checkbox"/>               |  | Countersink <input type="checkbox"/>                       |  |
| Tribal Knowledge <input type="checkbox"/>   |  | Rushing <input type="checkbox"/>               |  | Heat Treat <input type="checkbox"/>             |  | Cut Too Short <input type="checkbox"/>                     |  |
| LOA <input type="checkbox"/>                |  | Product Improvement <input type="checkbox"/>   |  | Wave/Twist in Tube <input type="checkbox"/>     |  | Instructions Incomplete/Unclear <input type="checkbox"/>   |  |
| Substation <input type="checkbox"/>         |  | Process Improvement <input type="checkbox"/>   |  | Marks/Chatter <input type="checkbox"/>          |  | Drill Holes <input type="checkbox"/>                       |  |
| Past Expiry Date <input type="checkbox"/>   |  | Manufacturing Process <input type="checkbox"/> |  | <b>OTHER :</b> _____                            |  |                                                            |  |
| Misidentified <input type="checkbox"/>      |  | Past Due <input type="checkbox"/>              |  |                                                 |  |                                                            |  |



|                                           |               |                     |                |
|-------------------------------------------|---------------|---------------------|----------------|
| <b>DART AEROSPACE LTD</b>                 |               | <b>Work Order:</b>  |                |
| <b>Description:</b> Collective Bell Crank |               | <b>Part Number:</b> | D212-725-1-007 |
| <b>Inspection Dwg:</b> D4215              | <b>Rev:</b> A | <b>Page 1 of 1</b>  |                |

### FIRST ARTICLE INSPECTION DIMENSION SHEET

MRB decisions on this part may only be performed by Dart DE #02. Any changes to the design, manufacturing process, approved operating environment and design loading spectrum will require a review of the fatigue evaluation for this part.

|                     |       |       |                      | Record Actual Dimensions |   |   |   |   |
|---------------------|-------|-------|----------------------|--------------------------|---|---|---|---|
| Dim                 | Min   | Max   |                      | 16                       | 7 | 3 | 4 | 5 |
| <b>HAAS Section</b> |       |       |                      |                          |   |   |   |   |
| A                   | 0.806 | 0.826 |                      | 0.818                    |   |   |   |   |
| B                   | 0.215 | 0.235 |                      | 0.231                    |   |   |   |   |
| C                   | 0.370 | 0.390 |                      | 0.383                    |   |   |   |   |
| D                   | 0.220 | 0.280 |                      | 0.250                    |   |   |   |   |
| E                   | 99.5  | 100.5 |                      | 100°                     |   |   |   |   |
| F                   | 0.086 | 0.106 |                      | 0.096                    |   |   |   |   |
| G                   | 6.452 | 6.472 |                      | 6.462                    |   |   |   |   |
| H                   | 0.022 | 0.042 | 1 <sup>ST</sup> Side | 0.030                    |   |   |   |   |
| H                   | 0.022 | 0.042 | 2 <sup>nd</sup> Side | 0.030                    |   |   |   |   |
| I                   | 0.998 | 1.000 |                      | 1.0020                   |   |   |   |   |
| J                   | 1.390 | 1.410 |                      | 1.401                    |   |   |   |   |
| K                   | 2.944 | 2.954 |                      | 2.949                    |   |   |   |   |
| L                   | 2.263 | 2.273 |                      | 2.268                    |   |   |   |   |
| M                   | 0.249 | 0.255 |                      | 0.252                    |   |   |   |   |
| N                   | 0.973 | 0.993 |                      | 0.982                    |   |   |   |   |
| O                   | 0.904 | 0.906 |                      | 0.9079                   |   |   |   |   |
| P                   | 0.249 | 0.255 |                      | 0.252                    |   |   |   |   |
| Q                   | 0.015 | 0.035 | 1 <sup>ST</sup> Side | 0.021                    |   |   |   |   |
| Q                   | 0.015 | 0.035 | 2 <sup>nd</sup> Side | 0.021                    |   |   |   |   |
| R                   | 0.834 | 0.854 |                      | 0.847                    |   |   |   |   |
| S                   | 1.040 | 1.060 |                      | 1.050                    |   |   |   |   |
| T                   | 0.220 | 0.280 |                      | 0.250                    |   |   |   |   |

Measured by: B.A.

Date: 16/10/10

|                      |       |       |  | Manual Milling Section |  |  |  |  |
|----------------------|-------|-------|--|------------------------|--|--|--|--|
| AA                   | 0.218 | 0.238 |  | 0.228                  |  |  |  |  |
| AB                   | 0.594 | 0.599 |  | 0.594                  |  |  |  |  |
| AC                   | 0.430 | 0.435 |  | 0.430                  |  |  |  |  |
| AD                   | 0.197 | 0.217 |  | 0.206                  |  |  |  |  |
| AE                   | 0.798 | 0.818 |  | 0.807                  |  |  |  |  |
| AF                   | 0.730 | 0.750 |  | 0.742                  |  |  |  |  |
| AG                   | 0.100 | 0.160 |  | 0.125                  |  |  |  |  |
| <b>Accept/Reject</b> |       |       |  |                        |  |  |  |  |

Measured by: B.A.

Date: 16/10/10

Audited by: F.K.

Date: 16-10-18

Preliminary Approval:

Date:

| Rev | Date     | Change                                          | Revised by | Approved |
|-----|----------|-------------------------------------------------|------------|----------|
| B   | 08.12.02 | Dimensions updated per Dwg Rev. D               | KJ/DD      |          |
| C   | 10.02.02 | Dimensions updated                              | KJ         |          |
| D   | 10.06.02 | Dwg Rev updated                                 | KJ         |          |
| E   | 13.08.23 | Dwg D212-725-1 superceded by D4215              | KJ         |          |
| F   | 16.02.24 | Tolerances for dimensions G, K, L and R revised | KJ         |          |



DQA: \_\_\_\_\_ Date: \_\_\_\_\_

## WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

|                                                              |                                                |                                                                                                                                                                                    |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                               |  |  |                                                                                                                                                            |  |
|--------------------------------------------------------------|------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|--|--|------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____ |                                                | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> |                                                            | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/><br/>           Machining <input type="checkbox"/><br/>           Thermoforming <input type="checkbox"/><br/>           Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/><br/>           Small Fab <input type="checkbox"/><br/>           Finishing <input type="checkbox"/><br/>           Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/><br/>           Prod. Eng. Coord. <input type="checkbox"/><br/>           Rec/Store/Packaging <input type="checkbox"/><br/>           Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/><br/>           Quality <input type="checkbox"/><br/>           Other <input type="checkbox"/> </div> </div> |                                               |  |  |                                                                                                                                                            |  |
| Date :                                                       |                                                | Step #:                                                                                                                                                                            |                                                            | QTY Effective :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                               |  |  | <b>MRB (QSI042) Approval</b><br><br>Completed By _____<br><br>Lead hand / Supervisor Approval Verification _____<br><br>QC / QA Coordinator Approval _____ |  |
| Description Work Order Deviation                             |                                                |                                                                                                                                                                                    |                                                            | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                               |  |  |                                                                                                                                                            |  |
|                                                              |                                                |                                                                                                                                                                                    |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                               |  |  |                                                                                                                                                            |  |
|                                                              |                                                |                                                                                                                                                                                    |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                               |  |  |                                                                                                                                                            |  |
| Root Cause                                                   |                                                | FAULT CATEGORY                                                                                                                                                                     |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                               |  |  |                                                                                                                                                            |  |
| Environment <input type="checkbox"/>                         | No Re-verification <input type="checkbox"/>    | Pressure/Forced <input type="checkbox"/>                                                                                                                                           | Temperature/Cure <input type="checkbox"/>                  | Power Loss/Surge <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Positioned Wrong <input type="checkbox"/>     |  |  |                                                                                                                                                            |  |
| Design <input type="checkbox"/>                              | Operator <input type="checkbox"/>              | Bending <input type="checkbox"/>                                                                                                                                                   | Set-up <input type="checkbox"/>                            | Folio/Program <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Outside Dimensions <input type="checkbox"/>   |  |  |                                                                                                                                                            |  |
| Doc/Data <input type="checkbox"/>                            | Offset/Setup <input type="checkbox"/>          | Centre Not Concentric <input type="checkbox"/>                                                                                                                                     | BOM/Route <input type="checkbox"/>                         | Grain <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Over/Under tolerance <input type="checkbox"/> |  |  |                                                                                                                                                            |  |
| Equip/Tooling <input type="checkbox"/>                       | Supplier <input type="checkbox"/>              | Cracks <input type="checkbox"/>                                                                                                                                                    | Broken/Damage/Defect <input type="checkbox"/>              | Weld <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Part Incorrect <input type="checkbox"/>       |  |  |                                                                                                                                                            |  |
| Handling/Pre <input type="checkbox"/>                        | Training <input type="checkbox"/>              | Crimp/Kink/Ripple/Wave <input type="checkbox"/>                                                                                                                                    | Inspection Incomplete/Unqualified <input type="checkbox"/> | Wrong Stock Pulled <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Part Lost/Missing <input type="checkbox"/>    |  |  |                                                                                                                                                            |  |
| Material <input type="checkbox"/>                            | Use for Testing <input type="checkbox"/>       | Cuffs <input type="checkbox"/>                                                                                                                                                     | Contamination <input type="checkbox"/>                     | Out of Sequence <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Part Moved <input type="checkbox"/>           |  |  |                                                                                                                                                            |  |
| Internal Transport <input type="checkbox"/>                  | Poor Information <input type="checkbox"/>      | Crushing <input type="checkbox"/>                                                                                                                                                  | Countersink <input type="checkbox"/>                       | Off-set <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Drawing <input type="checkbox"/>              |  |  |                                                                                                                                                            |  |
| Tribal Knowledge <input type="checkbox"/>                    | Rushing <input type="checkbox"/>               | Heat Treat <input type="checkbox"/>                                                                                                                                                | Cut Too Short <input type="checkbox"/>                     | Mislabeled <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Finish <input type="checkbox"/>               |  |  |                                                                                                                                                            |  |
| LOA <input type="checkbox"/>                                 | Product Improvement <input type="checkbox"/>   | Wave/Twist in Tube <input type="checkbox"/>                                                                                                                                        | Instructions Incomplete/Unclear <input type="checkbox"/>   | Fit/Function <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Misread <input type="checkbox"/>              |  |  |                                                                                                                                                            |  |
| Substation <input type="checkbox"/>                          | Process Improvement <input type="checkbox"/>   | Marks/Chatter <input type="checkbox"/>                                                                                                                                             | Drill Holes <input type="checkbox"/>                       | Misaligned/off center <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Turning Sequence <input type="checkbox"/>     |  |  |                                                                                                                                                            |  |
| Past Expiry Date <input type="checkbox"/>                    | Manufacturing Process <input type="checkbox"/> | OTHER : _____                                                                                                                                                                      |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                               |  |  |                                                                                                                                                            |  |
| Misidentified <input type="checkbox"/>                       | Past Due <input type="checkbox"/>              |                                                                                                                                                                                    |                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                               |  |  |                                                                                                                                                            |  |

## Chris Provencal

---

**From:** David Shepherd  
**Sent:** Monday, September 26, 2016 8:03 PM  
**To:** Jean-Luc Menard; Harvey Siemens  
**Cc:** Guillaume Auclair; Chris Provencal  
**Subject:** RE: D4215  
**Attachments:** JL MARK UPS.PDF

JL,

The changes requested in the attached markup are acceptable.

Chris,

Please sign for the deviations based on this email. As this is a critical part, please ensure that you attach a copy of this email to the work order.

Harvey,

I know you are on this, but since this is a critical part, I would like to follow thru with the drawing update as soon as possible.

Regards,  
David

-----Original Message-----

**From:** Jean-Luc Menard  
**Sent:** September-26-16 8:54 AM  
**To:** Harvey Siemens <hsiemens@dartaero.com>  
**Cc:** David Shepherd <dshepherd@dartaero.com>; Guillaume Auclair <gauclair@dartaero.com>  
**Subject:** D4215

Hi Harvey,

Mark-ups appear to be in the vault, I've attached them also to this e-mail.

As discussed, we will need David's approval to this deviation to meet the sales order as this is a critical part.

JL

-----Original Message-----

**From:** Harvey Siemens  
**Sent:** Monday, September 26, 2016 10:36 AM  
**To:** Jean-Luc Menard <jmenard@dartaero.com>  
**Subject:** RE:

JL,

You can put your mark-ups in the vault as well, if you like.

Again, if you don't have the permission, send them to me and I will put them in there.



1.284

1.285

8

7

6

5

4

3

2

1

D

D

C

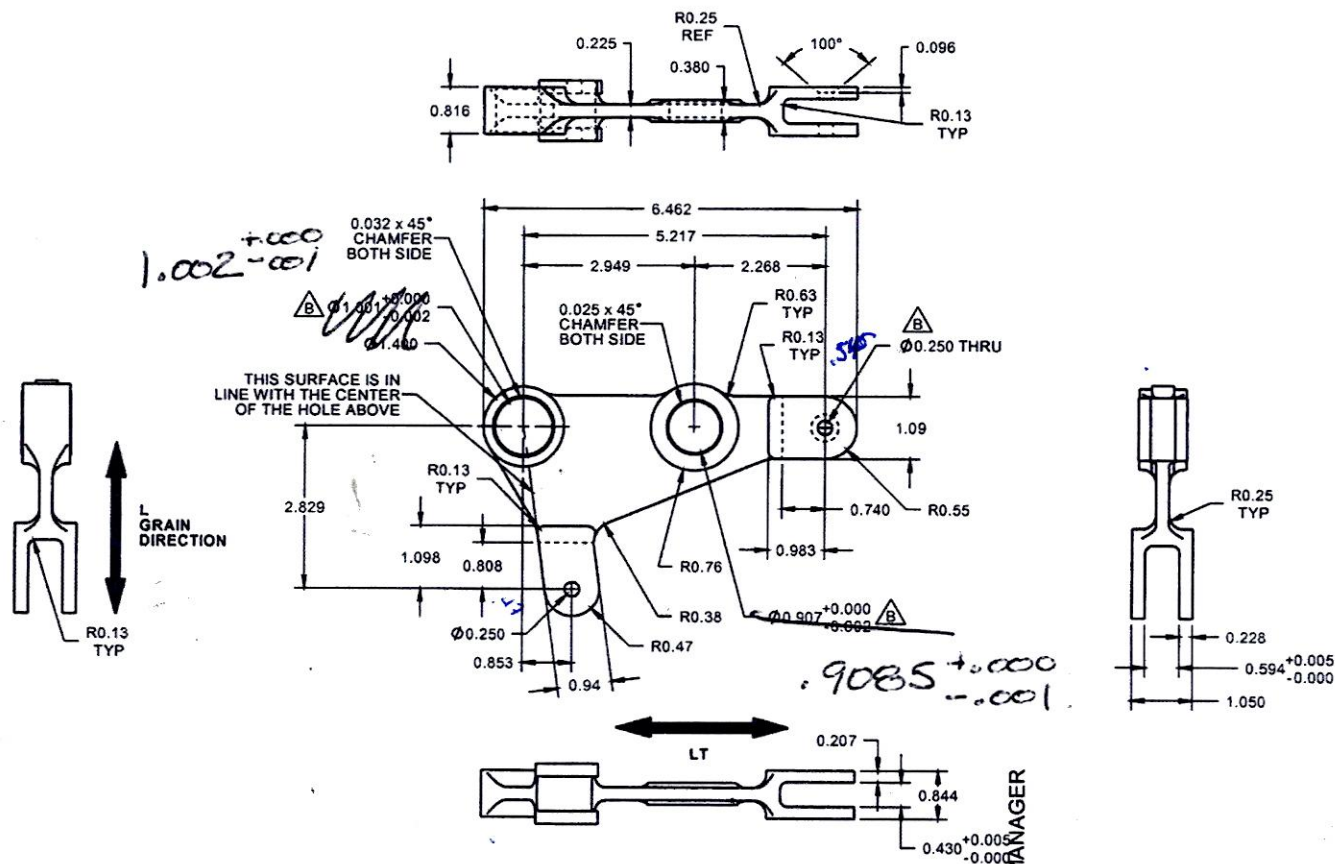
C

B

B

A

A

**NOTES:**

- 1) MATERIAL: 7075-T7351 ALUMINUM PER QQ-A-250/12
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
- 7) WEIGHT: 0.39 lbs
- 8) LPI PER ASTM 1417 LEVEL 2
- 9) SURFACE FINISH TO BE NO GREATER THAN 80 MICROINCH

**D212-725-1-007 COLLECTIVE BELLCRANK****CRITICAL PART**

MRB DECISIONS ON THIS PART MAY ONLY BE PERFORMED BY DART DE#02. ANY CHANGES TO THE DESIGN, MANUFACTURING PROCESS, APPROVED OPERATING ENVIRONMENT, AND DESIGN LOADING SPECTRUM WILL REQUIRE A REVIEW OF THE FATIGUE EVALUATION FOR THIS PART.

APPROVED BY DESIGN MANAGER

|            |          |                                        |              |
|------------|----------|----------------------------------------|--------------|
| DESIGN     | DC       | <b>DART AEROSPACE LTD</b>              |              |
| DRAWN      | RF       | HAWKESBURY, ONTARIO, CANADA            |              |
| CHECKED    | VS       | DRAWING NO.                            | REV. B       |
| MFG. APPR. | JLM      | <b>D4215</b>                           | SHEET 2 OF 2 |
| APPROVED   | HS       | TITLE                                  | SCALE        |
| DE APPR.   |          | <b>COLLECTIVE BELLCRANK</b>            | NTS          |
| DATE       | 16.02.29 | COPYRIGHT © 2011 BY DART AEROSPACE LTD |              |



Dart Aerospace Ltd.  
1270 Aberdeen Street  
Hawkesbury, ON K6A 1K7  
Tel: 613 632 9577  
Fax: 613 632 1053

## PURCHASE ORDER

Purchase Order ID **PO33960**

Purchase Order Date 10/18/2016

PO Print Date 10/19/2016

Page Number 2 of 2

**Order From :**  
SKYSERVICE  
6120 MIDFIELD ROAD  
MISSISSAUGA, ONTARIO L5P 1B1  
CANADA

VC-SKY001

**Ship To :** DART AEROSPACE LTD  
1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
CANADA

**Contact Name**  
**Vendor Phone** 905-678-5636

**Ship To Contact**  
**Ship To Phone**  
**Ship Via:** Delivered  
**Ship Acct:**

**Buyer** Chantal Lavoie  
**Customer POID**  
**Customer Tax #** 10127-2607  
**Terms** Net 30  
**Currency** CAD  
**FOB** FCA - (Free Carrier)

|   |        |                                            |            |      |        |        |
|---|--------|--------------------------------------------|------------|------|--------|--------|
| 3 | 151207 | D212-725-1-007<br>COLLECTIVE BELL<br>CRANK | 10/19/2016 | 6.00 | \$0.00 | \$0.00 |
|---|--------|--------------------------------------------|------------|------|--------|--------|

No  
10/19/2016

LIQUID PENETRANT INSPECTION AS PER QSI 038 OR  
LPI AS PER ASTM 1417 LEVEL 2

PP  
16-10-19

SP16-10-19

**Line Total:** \$0.00

**PO Total:** \$0.00

**Note:** Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit [www.dartaerospace.com](http://www.dartaerospace.com) for further explanation.

Change Nbr: 2

Change Date: 10/19/2016



**skyservice****Work Order Traveler**

Sky Service F.B.O. Inc.

DOT APP 53-89 / EASA 145.7142 / BDA AMO 385

|                          |                                      |                      |                         |
|--------------------------|--------------------------------------|----------------------|-------------------------|
| <b>WO #:</b> MWO29789    | <b>Customer:</b> Dart Aerospace Ltd. | <b>Dept:</b> NDT YUL | <b>Reference:</b> 33960 |
| <b>Descr:</b>            | <b>PN:</b>                           | <b>S/N:</b>          | <b>Qty:</b> 1           |
| <b>Make:</b>             | <b>Model:</b>                        | <b>Reg:</b>          | <b>A/C S/N:</b>         |
| <b>TSN:</b>              | <b>CSN:</b>                          | <b>TSO:</b>          |                         |
| <b>Task:</b> UNSCHEDULED |                                      |                      | <b>Sequence:</b> 1      |

**Work Required:**

CARRY OUT NDT ON 7 PARTS AS PER PO33960

1 FUEL TANK ASSY , ITEM ID# D4464-041 , WORK ORDER ID# 145662

✓ 6 COLLECTIVE BELL CRANK , ITEM ID# D212-725-1-007 , WORK ORDER ID# 151207

|                                                     |                 |            |            |              |                |               |                       |
|-----------------------------------------------------|-----------------|------------|------------|--------------|----------------|---------------|-----------------------|
| <b>Action Taken:</b>                                |                 |            |            |              |                | <b>Date:</b>  | <b>Initial/Stamp:</b> |
| LPI C/O IAW ASTM E-1417M-13                         |                 |            |            |              |                | OCT 18 2016   |                       |
| NO CRACK FOUND                                      |                 |            |            |              |                |               |                       |
| PEN. ZL-56, MPO13600, CLEANER SKC-S MPO13923 , EMU. |                 |            |            |              |                |               |                       |
| MPO15896, DEV. MPO11715 , UV LIGHT M-20142          |                 |            |            |              |                |               |                       |
| <b>Description</b>                                  | <b>Location</b> | <b>P/N</b> | <b>Qty</b> | <b>Batch</b> | <b>S/N Off</b> | <b>S/N On</b> |                       |
|                                                     |                 |            |            |              |                |               |                       |
|                                                     |                 |            |            |              |                |               |                       |
|                                                     |                 |            |            |              |                |               |                       |
|                                                     |                 |            |            |              |                |               |                       |
|                                                     |                 |            |            |              |                |               |                       |
|                                                     |                 |            |            |              |                |               |                       |
|                                                     |                 |            |            |              |                |               |                       |

I certified that the maintenance described above has been performed in accordance with the applicable standard of airworthiness.

|                             |                          |                             |
|-----------------------------|--------------------------|-----------------------------|
| <b>Signature:</b>           | <b>ACA/SCA Stamp</b><br> | <b>Date:</b><br>OCT 18 2016 |
| <b>Name:</b> RAFIK MELIKIAN |                          |                             |